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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/965,685	09/27/2001	Satoshi Hasegawa	9319S-000287	2845

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[REDACTED] EXAMINER

DI GRAZIO, JEANNE A

ART UNIT	PAPER NUMBER
2871	

DATE MAILED: 08/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/965,685	HASEGAWA ET AL.
	Examiner Jeanne A. Di Grazio	Art Unit 2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 09 May 2003.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 5-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 5-10 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 27 September 2001 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ . |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ . | 6) <input type="checkbox"/> Other: _____ . |

DETAILED ACTION

Priority

Priority to Japanese Patent Application No. 2000-300861 (Sept. 29, 2000) is claimed.

This Action replaces the Action mailed on Feb. 11, 2003.

Preliminary Amendment

By Preliminary Amendment of December 14, 2001, claims 1-4 have been canceled and new claims 5-10 have been added. Claims 5-10 are pending in this Application.

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The Examiner wishes to suggest the following title.

The following title is suggested: "Method of Manufacturing Electro-Optical Device by Flexography for Reduced Moiré."

Claim Objections

Claims 7 and 8 objected to for the following reasons.

Claim 7 recites "wherein said film is an alignment film"; however, claim 5 upon which claim 7 depends does not recite a film.

Again, in claim 8, the claim recites that the “film is formed on a dummy substrate”; however, there has been no previous recitation of a film in claim 5. Claim 5 recites steps of forming color filters and transferring a coating liquid onto a substrate; however, it is not clear as to whether the color filter is the film in question as later recited in claims 7 and 8 or whether the film is the coating liquid later recited in claims 7 and 8. Appropriate correction is required.

Claim 9 objected to for the following reasons.

In claim 9, Applicant recites forming an overcoat film and forming an alignment film on the overcoat film and then recites that the coating liquid is transferred from said projection to said large substrate to form said overcoat film and said alignment film. The scope of claim 9 is unclear because it is not clear as to whether the claim is directed at a method of forming an alignment film or to a method of forming an overcoat film or to forming both an alignment and overcoat film. The claim also leads one of ordinary skill in the art to believe that there may be two alignment films – one already formed on a substrate and another formed as a result of the coating liquid. Claim 9 also leads one of ordinary skill in the art to believe that there are two overcoat films – one formed on the substrate and another one formed as a result of the coating liquid.

Furthermore, in Claim 9, it is not clear as to the sequence of method steps, for example, is the overcoating film formed before the alignment film or are the alignment film and overcoating film both formed concurrently? Appropriate correction is required.

Appropriate clarifications concerning claims 7-9 are required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5-8 rejected under 35 U.S.C. 103(a) as being unpatentable over Evans et al. (US 5,514,503).

Per claims 5-6: Evans has the step of forming color filters that include a plurality of colors (Col. 7, Lines 65-67) at a first predetermined pitch on a front side of a substrate (the color filters are filled into recesses, 11, and then transferred to a transfer layer, 14, and the transfer layer is then adhered to a substrate, 12, See Figure 4, See Col. 8, Lines 1-11).

Evans has the step of transferring a coating liquid (used for forming a black matrix into a desired pattern) from an imaging roll onto a transfer layer (the transfer layer has a series of recesses corresponding to recessed patterns for the formation of the black matrix)(Col. 8, Lines 38-43).

Evans has the step of transferring coating liquid (black matrix) all onto a substrate as noted.

Evans does not appear to specify that at least two of (or all three): a first predetermined pitch of the color filters, a second pitch of meshes formed on a surface of an anilox roller, and a third pitch of meshes formed on a surface of a projection are substantially equal; however, in Evans, the black matrix patterning roller (18) contacts the transfer layer (14) to transfer the cured

or otherwise hardened black matrix pattern (10) from recessed pattern (20) on patterning roller (18) to transfer layer (14) on collector roll (16).

Specifically, in Evans, the black matrix pattern must have a pitch corresponding with pitches of transfer layer and roller for precision in defining the edges of the black matrix pattern.

The problem to be solved in Evans, is the need for precisely defined black matrix edges (Col. 4, Lines 35-41) which Evans accomplishes by precisely aligning the black matrix-raised pattern with roller and transfer layer patterns.

Following the logic of Evans, the color filter patterns must have pitches equivalent to those of the transfer layer and roller because the color filters are formed in the recesses defined by the black matrix (Col. 8, Lines 1-11).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have at least two (or all three) of a predetermined pitch of color filters, a second pitch of meshes formed on a surface of an anilox roller, and third pitch of meshes formed on a surface of a letterhead projection substantially equal for the precise alignment of color filters and for precision in defining the edges of a black matrix for maximum contrast.

Per claim 7: Evans has an alignment film for aligning or orienting liquid crystal molecules (Col. 1, Lines 32-33).

Per claim 8: Evans has a transfer layer that acts as a dummy substrate for transferring the black matrix and color filters onto the substrate (Col. 5, Lines 20-22).

Claims 9 and 10 rejected under 35 U.S.C. 103(a) as being unpatentable over Evans et al. (US 5,514,503) in view of Tanada et al. (EP 1 189 097 A2) and further in view of Majima (US 5,724,110).

Per claims 9 and 10: Evans has the steps of forming a color filter on a transparent substrate, forming a planarizing (overcoating) film on said color filter, forming an electrode pattern on said planarizing film, and forming an alignment film (Col. 1, Lines 17-35). Evans has the step of subjecting a substrate to flexography as noted throughout Evans.

Evans has the step of forming color filters that include a plurality of colors (Col. 7, Lines 65-67) at a first predetermined pitch on a front side of a substrate (the color filters are filled into recesses, 11, and then transferred to a transfer layer, 14, and the transfer layer is then adhered to a substrate, 12, See Figure 4, See Col. 8, Lines 1-11).

Evans has the step of transferring a coating liquid (used for forming a black matrix into a desired pattern) from an imaging roll onto a transfer layer (the transfer layer has a series of recesses corresponding to recessed patterns for the formation of the black matrix)(Col. 8, Lines 38-43).

Evans has the step of transferring coating liquid (black matrix) all onto a substrate as noted.

Evans does not appear to have the general step of forming a first terminal region and a second terminal region along edges of said substrate, said edges not containing said overcoating film and said alignment film; however, Tanada has an overcoat film and alignment film formed on inner faces of a substrate [0015]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Evans in view of Tanada to not form an alignment film and overcoating film along edges of a substrate for proper sealing of the electro-optical device.

Evans does not appear to have the step of cutting a substrate into a plurality of substrates; however, Majima has the step of cutting a large substrate into a plurality of substrates (Col. 7, Lines 24-30). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Evans in view of Majima to cut several substrates from one large substrate for increased yield.

Evans does not appear to specify that at least two of (or all three): a first predetermined pitch of the color filters, a second pitch of meshes formed on a surface of an anilox roller, and a third pitch of meshes formed on a surface of a projection are substantially equal; however, in Evans, the black matrix patterning roller (18) contacts the transfer layer (14) to transfer the cured or otherwise hardened black matrix pattern (10) from recessed pattern (20) on patterning roller (18) to transfer layer (14) on collector roll (16).

Specifically, in Evans, the black matrix pattern must have a pitch corresponding with pitches of transfer layer and roller for precision in defining the edges of the black matrix pattern.

The problem to be solved in Evans, is the need for precisely defined black matrix edges (Col. 4, Lines 35-41) which Evans accomplishes by precisely aligning the black matrix-raised pattern with roller and transfer-layer patterns.

Following the logic of Evans, the color filter patterns must have pitches equivalent to those of the transfer layer and roller because the color filters are formed in the recesses defined by the black matrix (Col. 8, Lines 1-11).

Furthermore, again following the logic of Evans, the process may be adapted for use in the formation of an alignment film or overcoating film in any situation where precision alignment is crucial.

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have at least two (or all three) of a predetermined pitch of color filters, a second pitch of meshes formed on a surface of an anilox roller, and third pitch of meshes formed on a surface of a letterhead projection substantially equal for the precise alignment of color filters and alignment and overcoating layers and for precision in defining the edges of a black matrix for maximum contrast.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeanne A. Di Grazio whose telephone number is (703)305-7009. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim, can be reached on (703) 305-3492. The fax phone numbers for the organization where this application or proceeding is assigned are (703)746-8741 for regular communications and (703)746-8741 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

Jeanne Andrea Di Grazio

JDG
July 25, 2003

Robert Kim, SPE


ROBERT H. KIM
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JULY 25, 2003